

What is claimed is:

1. An antimicrobial and chemical deactivating composition for use in a liquid medium or for incorporation into a coating or structural plastic materials, thin microporous membranes, or textiles, or sponges comprised of nanosize or submicron particles or silver, nano size platinum with silver and their salts with parabens, oxide, salicylate, acetate, citrate, benzoate, and phosphate along with copper and zinc salts of the same.
2. An antimicrobial composition comprising of nanosize or submicron size silver, platinum, copper, zinc and/or its salts with oxide, salicylate, acetate, citrate, benzoate, and phosphate and Zinc Pyrithione as a powder, dispersion or as an encapsulated composition with a suitable polymeric hydrogel selected from a group of acrylates such as phema, hydrophilic polyurethanes, natural biopolymers such as alginates, polyacetic acid, and acrylamides.
3. The composition of claim 1 wherein the support material is carbon blacks, nanocrystalline titanium dioxide, carbon nanotubes, whiskers or fibers.
4. A method for reducing the exposure or deactivation of chemical warfare agents and other toxic organic vapors at the surfaces, comprising of incorporation of the above compositions in porous fluoropolymers with a sandwich layer or crosslinked polyvinyl alcohol or vinylalcohol copolymers with plasticizers and additives with the cross linking agents glyoxal, formaldehyde, and titanium triamino isopropoxide.